SATURN

An Overview of the SATURN Approach to Radar and Communications Spectrum Sharing

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"The views expressed are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government"

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System View

SATURN relies on a collaborative network between military and commercial communications devices and military radars to achieve SSPARC objectives.

Military Voice/Data/Management Communications
Military Management Communications
Commercial Voice/Data Communications
Commercial Management Communications
Malfunctioning Device Emissions
Military Radar Transmit
Military Radar Return

The Spectrum Resource Manager (SRM) is the key innovation optimizing spectral, temporal, and spatial utilization between communications and radar devices. Information is shared in an open, non-proprietary manner. Minimizing the system overhead and device impacts to users are key considerations.

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System Functional Block Diagram

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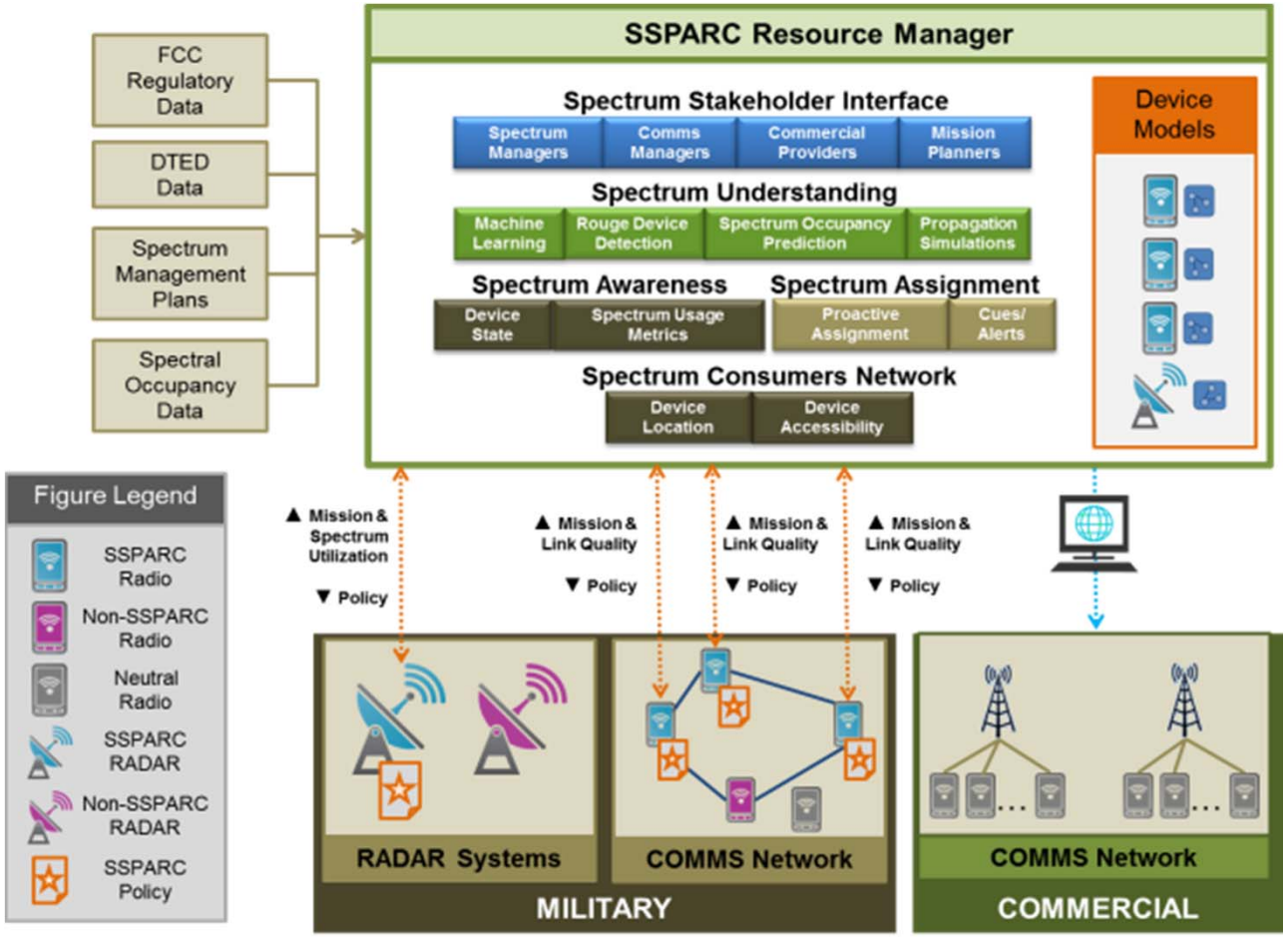

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Possible Military / Commercial Sharing Architecture

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- Operating Channels
- Approved Duration
- (other)

Response

- Location
- (other)

Query

3.5 GHz SAS$_1$

Query

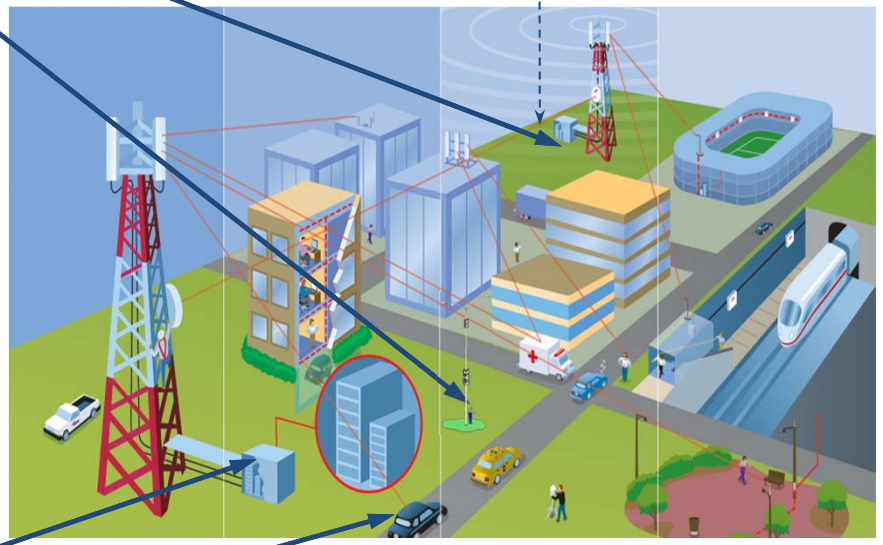
- Location
- PA/GA
- (other)

Response

- Operating Channels
- Approved Duration
- (other)

Federal SAS

FCC Data
EAS
IBFS
ULS



Federal Data
GMF
FSMS
Operational details

3.5 GHz SAS$_n$

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Military / Military Sharing Design Platforms

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Flexible, modern systems are being used in the current SSPARC design effort

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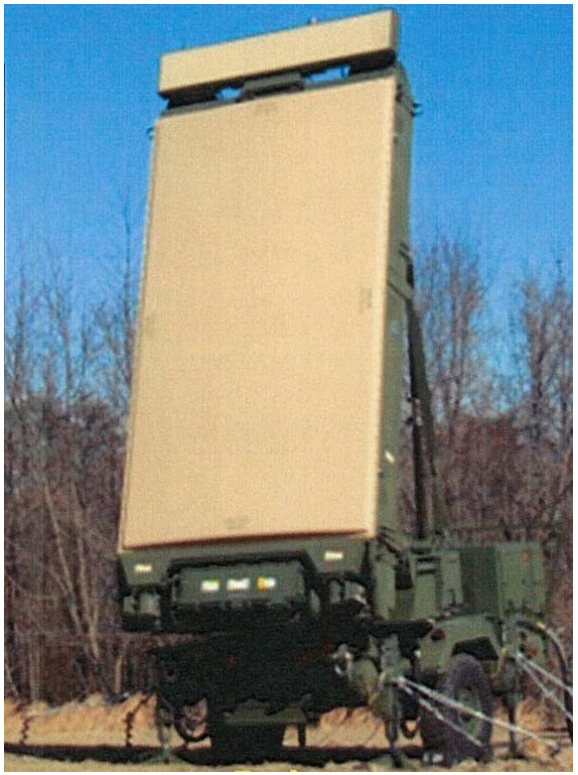
AN/TPS-80 Ground/Air Task-Oriented Radar (G/ATOR)

- **Recently Approved for Low-Rate Initial Production**
- **Active, Electronically-Scanned Array (AESA) radar**
- **Many device-level separation mechanisms incorporated in the design**



Harris

AN/PRC-152 Falcon III Radio Platforms

- **Family of cognitive radios**
- **Software-defined**
- **Operational code is common between platforms**

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Questions?

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